WHAT IS CLAIMED IS:

1. An AC ripple current reduction circuit for an AC converter, comprising:

a low frequency modulated high frequency AC voltage source at the input;

a first capacitor across which the circuit output voltage is provided;

a first, main inductor in series with the first capacitor;

an auxiliary circuit including a second capacitor and a transformer coupled to the main inductor, the transformer secondary being in series with the second capacitor; and

means for enabling the flow of a time varying voltage across the first and second capacitors that has a frequency much less than the ripple frequency of the current in the main inductor.

2. An AC ripple current reduction circuit as defined in claim 1, further comprising a secondary inductor and a damping resistor in series with the second inductor.

3. An AC ripple current reduction circuit for an AC converter, comprising:

a low frequency modulated high frequency AC voltage source at the input;

a first capacitor across which the circuit output voltage is provided;

a first, main inductor in series with the first capacitor;

a second capacitor in an auxiliary circuit; and

means for enabling the flow of a time varying voltage across the first and second capacitors that has a frequency much less than the ripple frequency of the current in the main inductor.

4. An AC ripple current reduction circuit for an AC converter, comprising:

a three-phase low frequency modulated high frequency AC voltage source at the input;

the ripple current reduction circuit being Y-connected and having three sections, each section including:

a first capacitor across which the circuit output voltage is provided;

a first, main inductor in series with the first capacitor;

an auxiliary circuit including a second capacitor and a transformer coupled to the main inductor, the primary of the transformer being in series with the first capacitor; and

second inductor connected in series with the secondary of the transformer.

5. An AC ripple current reduction circuit for an AC converter, comprising:

a three-phase low frequency modulated high frequency AC voltage source at the input;

the ripple current reduction circuit being Δ-connected and having three sections, each section including:

a first capacitor across which the circuit output voltage is provided;

a first, main inductor in series with the first capacitor;

an auxiliary circuit including a second capacitor and a transformer coupled to the main inductor, the primary of the transformer being in series with the first capacitor; and

a second inductor connected in series with the secondary of the transformer.

6. An AC ripple current reduction circuit, comprising:

an AC converter at the input;

a first capacitor across which the circuit output voltage is provided;

a first, main inductor in series with the first capacitor;

an auxiliary circuit including a second capacitor and a transformer coupled to the main inductor, the primary of the transformer being in series with the first capacitor; and

a second inductor connected in series with the secondary of the transformer.

7. An AC ripple current reduction circuit as defined in claim 6, further comprising a damping resistor in series with the second inductor.

8. An AC ripple current reduction circuit, comprising:

an AC converter at the input;

a first capacitor across which the circuit output voltage is provided;

a first, main inductor in series with the first capacitor;

a second capacitor in an auxiliary circuit; and

means for enabling the flow of a time varying voltage across the first and second capacitors that has a frequency much less than the ripple frequency of the current in the main inductor.

9. An AC ripple current reduction circuit, comprising:

a three-phase AC converter at the input;

the ripple current reduction circuit being Y-connected and having three sections, each section having

a first capacitor across which the circuit output voltage is provided;

a first, main inductor in series with the first capacitor;

an auxiliary circuit including a second capacitor and a transformer coupled to the main inductor, the primary of the transformer being in series with the first capacitor;

a second inductor connected in series with the secondary of the transformer; and

a neutral to which each of the first capacitors in the three sections is connected.

10. An AC ripple current reduction circuit, comprising:

a three-phase AC converter at the input;

the ripple current reduction circuit being Δ-connected and having three sections, each section including:

a first capacitor across which the circuit output voltage is provided;

a first, main inductor in series with the first capacitor;

an auxiliary circuit including a second capacitor and a transformer coupled to the main inductor, the primary of the transformer being in series with the first capacitor; and

a second inductor connected in series with the secondary of the transformer.

11. An AC ripple current reduction circuit as defined in claim 9 further comprising means for enabling zero sequence operation, including a connection from a neutral point and ground.

12. An AC ripple reduction circuit as defined in claim 9, further comprising means for enabling zero sequence operation, including a connection of a third inductor from a neutral point to ground.